

Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Currently amended) A blood treatment device comprising a blood purification element which is divided into two chambers by a semipermeable membrane, with a first chamber being part of a dialysis fluid circuit and a second chamber being part of an extracorporeal blood circuit,

a dialysis fluid inlet line which leads from a dialysis fluid processing unit to supply fresh dialysis fluid to at least one of the first chamber and directly into the blood circuit,

a dialysis fluid outlet line for removing spent dialysis fluid from the first chamber,

a blood inlet line for supplying blood to the second chamber,

a blood return line for returning blood from the second chamber,

a control unit for controlling the blood treatment device,

an analyzer unit which is connected to the control unit, and

at least one sensor which is connected to the analyzer unit on at least one of the blood circuit and the dialysis fluid

circuit for detecting the concentration of a substance which is capable of penetrating through the semipermeable membrane,

the analyzer unit being configured (i) to determine on the basis of detected values of the at least one sensor the concentration C_{bi} of the substance in the blood in the blood inlet line, the instantaneous transfer rate $\Delta M/\Delta t$ of the substance through the membrane, and the total quantity M of the substance withdrawn through the membrane during the treatment, (ii) to store a first admissible value range for the blood concentration C_{bi} of the substance, a second admissible value range for the transfer rate $\Delta M/\Delta t$, and a third admissible value range for the total quantity M of the substance to be withdrawn, and (iii) to instruct the control unit such that the blood treatment device performs the blood treatment while maintaining all three of the admissible value ranges,

the substance whose concentration is detected being potassium.

2. (Previously presented) The blood treatment device according to Claim 1, wherein the at least one sensor is provided in the dialysis fluid outlet line for determining a concentration C_{do} .

3. (Currently amended) The blood treatment device according to Claim 2, wherein a second sensor is provided in the dialysis

fluid inlet line for determining a concentration Cdi of the ~~substance~~ potassium and is connected to the analyzer unit.

4. (Currently amended) The blood treatment device according to Claim 2, wherein a concentration Cdi of the ~~substance~~ potassium in the dialysis fluid inlet line is predetermined by at least one of the control unit and the analyzer unit.

5. (Canceled)

6. (Previously presented) The blood treatment device according to Claim 1, wherein the second value range extends from zero up to a maximum value.

7. (Currently amended) The blood treatment device according to Claim 1, wherein a target value Mend which is within the third value range is stored in the analyzer unit for the total quantity of the ~~substance~~ potassium to be withdrawn.

8. (Previously presented) The blood treatment device according to Claim 7, wherein the analyzer unit instructs the control unit that the target value Mend has been reached after a planned treatment time.

9. (Currently amended) The blood treatment device according to Claim 7, wherein the analyzer unit instructs the control unit that on reaching the target value M_{end} the blood treatment is to be continued with a concentration C_{di} of the ~~substance~~ potassium in the dialysis fluid inlet line such that there is no longer any transfer of the ~~substance~~ potassium through the membrane.

10. (Currently amended) The blood treatment device according to Claim 1, wherein the control unit is configured for ordering an initial measurement of the blood concentration C_{bi} with preset treatment parameters and the analyzer unit is configured for determining an initial value of C_{bi} , and based on the initial value of C_{bi} , the first admissible value range and the second admissible value range for the blood treatment, proposing a value for at least one of a concentration C_{di} of the ~~substance~~ potassium in the dialysis fluid inlet line, and a dialysis fluid flow Q_d and a blood flow Q_b .

11. (Previously presented) The blood treatment device according to Claim 10, wherein the analyzer unit determines the concentration C_{di} based on the value which corresponds to a lower limit of the first admissible value range.

12. (Previously presented) The blood treatment device according to Claim 10, wherein the analyzer unit determines the

concentration Cdi by an upper limit of the second admissible value range.

13. (Currently amended) The blood treatment device according to Claim 11, wherein a selection device for prioritizing the withdrawal of the ~~substance~~ potassium is provided on an input unit by an alignment with the lower limit of the first admissible value range or the upper limit of the second admissible value range.